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Causes of country-specific effect related to the value relevance of cash flows and earnings: evidence from France, Germany, Italy and Spain

Mariano González Sánchez¹, Eva M. Ibáñez Jiménez¹ and Ana I. Segovia San Juan¹

Abstract: Previous studies show that, in common-law countries, the explanatory power of stock returns is higher using cash flows than earnings and accruals, while the opposite is true in code-law countries. Moreover, the literature has shown the existence of a country-specific effect motivated by different causes (taxation, financial system, creditor protection, among others). Our aim is to analyze whether this country-specific effect exists among companies in the largest Eurozone countries (France, Germany, Italy and Spain) despite the common regulatory framework, and also to study the causes that explain this country effect. We find empirical evidence that French, Italian and Spanish firms are influenced by tax rules, while German companies are more affected by creditors protection; also, Spain presents a bank-oriented financial system. Besides, the transitory earnings effect, characteristic of code-law countries, is not a cause of the country-specific effect. Therefore, national regulations are more relevant than the general EU regulatory framework.

Subjects: International Finance; Finance; Business, Management and Accounting

Keywords: cash flow statement; country effect; code-law; articulation error; transitory earnings; tax rule; creditor protection; financial structure

JEL CLASSIFICATION: G32; G38; M41

1. Introduction

The information volume in the annual accounting statements of companies has been growing over the last decade.¹ More information, however, does not always mean higher quality. The IASB's (International Accounting Standard Board) Conceptual Framework for Financial Reporting includes relevance as one of the fundamental qualitative characteristics required for financial information. Relevance is defined as the influence on economic decisions and, for the purpose of this study, how the accounting information provides explanations for equity investors about market returns (International Accounting Standards Board, IASB, 2018).

As a consequence, the literature compares the explanatory power of the cash flow statement with that obtained through earnings and accruals (income statement and balance sheet information) and finds that common-law countries show a higher explanatory capacity from cash flows, while in code-law countries earnings display a higher explanatory power of stock market returns (see among others, Foerster et al. (2017) and Sahin (2020)). Additionally, some studies have found that the explanatory power of accounting variables depends on country-specific effects (for

example, Delvaille et al. (2005)), even in Eurozone countries (see for example, Cutillas Gomariz et al. (2016) and Boujelben et al. (2020)).

Despite above and to our knowledge, there is no empirical research on EU code-law countries that studies whether the value relevance of the cash flow statement is different than the relevance of income statement and balance sheet depending on the company's country of origin and, more important, what are the possible causes of this country effect among countries from the same economic area (EU). For this purpose, we study the companies from the four largest EU countries (French, German, Italian, and Spanish listed companies) given that international capital markets and the EU Regulation (which requires the application of IFRS to consolidated accounts of listed companies since 2005) push towards real accounting convergence.

Therefore, this empirical study attempts to clarify and contribute to the literature in several aspects. The main contribution is the study of the potential causes of country-specific effect to explain the stocks market returns through accounting data in EU code-law countries. A secondary contribution is the analysis of the different value relevance of cash flows versus those obtained from the balance sheet and income statement in these countries. The results can help investors and the regulator to better understand the differences that exist between companies in different countries despite being subject to a common regulatory framework.

The rest of the study is organized as follows: Section 2 reviews the literature and develops the hypothesis; Section 3 explains the methodology for testing the hypothesis; Section 4 studies the sample data; Section 5 analyzes the results of the hypothesis testing, and Section 6 provides the conclusions.

2. Literature review and hypotheses

In the literature, a recurrent empirical result is that the explanatory power of cash flows from stock returns is greater than that obtained from earnings and accruals in common-law countries, and the opposite is true in code-law countries (Akbar et al., 2011; Arthur et al., 2010; Ball et al., 2016; Barth et al., 2008; Farshadfar & Monem, 2013; Habib, 2008; Horton et al., 2008; Imam et al., 2013; Novy-Marx, 2013). These empirical studies either focus on a single country, or compare common-law countries with code-law countries. In the latter case, moreover, the samples usually include the most important countries in each group: US, UK and Australia (see for example, Lu et al. (2018)) among common-law countries and, Germany (see, Kaserer and Klingler (2008)) and France (see, Charitou et al. (2010)) among EU code-law countries. Thus, for example, Camodeca et al. (2014) analyzes the value relevance of accounting information in the Italian and UK stock markets, but there are no studies that analyze whether there is a country-specific effect within the EU.

A usual way in the the literature (Hribar & Collins, 2002; Orpurt & Zang, 2009) to test the added value relevance of cash flow statement consists of including as regressors the difference between disclosed cash flow components and estimated cash flow components from balance sheet and income statement (called articulation error) then, if this variable is statistically significant, the added value relevance of the cash flow statement exists.

Additionally, the empirical studies (Akono & Nwaeze, 2018; Andrén & Jankensgård, 2020; Charitou et al., 2018; Farshadfar et al., 2019; Francis, 2010) have analyzed the different explanatory power of each component of the cash flow statement (operating, investing and financing cash flows) and found that operating cash flow sub-statement is more relevant than investing and financing cash flows. Also, more recent empirical studies (Bradbury, 2011; Kent & Birt, 2021; Kent & Bu, 2020; Sidhu & Yu, 2021) analyze whether the explanatory power of operating cash flows from the direct method is different from that obtained by the indirect method and found empirical evidence that direct method is more relevant than indirect method.

In this context, our first hypothesis not only contrasts the relevance of the cash flow statement against the balance sheet and income statement for EU code-law countries, but also

tests whether it is different depending on the country of origin of the companies. Then, we formulate the following hypotheses for EU code-law countries:

Hypothesis-1a: *Cash flow statement information (operating, investing and financing cash flows) present lower relevance to explain the stocks returns than balance sheet and income statement data.*

Hypothesis-1b: *Balance sheet, income statement and cash flow statement data show country-specific effects in explaining stock market returns.*

Note that if the hypothesis-1b is accepted then, we could study the causes of the country effect; besides, according to the result of the test of hypothesis-1a, we will know what accounting information we should use to study the causes of the country effect.

In addition to the above, the literature (Ali & Hwang, 2000; Bartov et al., 2002; Delvalle et al., 2005; Devalle et al., 2010; Hung, 2001; Li & Ding, 2008; Troilo et al., 2019) points to possible causes of the country-specific effect:

- (1) Different accounting standards, which entails different degrees of relevance of the accounting information.
- (2) Level of internationalization of companies.
- (3) Weak investor protection, for example, if auditing requirements are kept to a minimum. This is justified because an accrual system allows managers greater opportunities for manipulation.
- (4) Bank-oriented versus market-oriented financial system. The value relevance of financial reports in bank-oriented systems is lower, because banks have direct access to company information.
- (5) Taxation. Tax rules influence financial accounting reporting to reduce taxes by reporting systematically lower profits, thereby undermining the value relevance of financial reports.
- (6) Smoothing of results in code-law countries, due to more prudent regulations, thus avoiding excessive volatility of results.
- (7) Effect of commercial law or creditors protection, since a stronger rule for creditor protection results in lower levels of working capital, less sourcing from retained earnings, and more sourcing from banks or financial markets.

Of all these possible causes identified in the literature, this study focuses on the last four, since the first three depend on the different regulations among countries and, given that our study is focused on EU countries with a common regulatory framework, these causes are less relevant. As a result, we obtain the following hypotheses:

Hypothesis-2: There is a country-specific effect related to the value relevance of cash flows and earnings which is cause by:

- **Hypothesis-2a:** *Different orientation of the financial system: bank-oriented versus market-oriented.*

- Hypothesis-2b: *Different degree of influence of tax regulations.*
- Hypothesis-2c: *Transitory earnings.*
- Hypothesis-2d: *Level of creditor importance.*

3. Methodology

First, we check if there is a country effect (hypothesis-1b) and which accounting information is more relevant to study the causes of this effect (hypothesis-1a). Following the literature, we define our model under the premise that companies obtain a return on undistributed cash flows as dividends that is equal to the cost of capital (the discount rate) and the dividend policy is irrelevant (Miller & Modigliani, 1961). Traditionally, the accounting literature (Easton & Harris, 1991) has tried to explain the share price as a function of book value plus other components.² In this context, the empirical research usually assumes that clean surplus relation is fulfilled and then, it replaces book value with its equivalent, i.e., the changes in book value per share are equal to earnings per share and dividend. Besides, the regressors are expressed as a rate, as well as the dependent variable (stock market return), i.e., these variables are deflated by the share price (see for example, Ali and Hwang (2000), Bartov et al. (2002), Delvaile et al. (2005), Devalle et al. (2010), and Hung (2001), and Li and Ding (2008)):

$$\begin{aligned}
 r_{i,t} = & \beta_1 \cdot e_{i,t} + \beta_2 \cdot nca_{i,t} + \beta_3 \cdot int_{i,t} + \beta_4 \cdot var.deb_{i,t} + \beta_5 \cdot tax_{i,t} + \beta_6 \cdot ol_{i,t-1} + \beta_7 \cdot wc_{i,t} \\
 & + \beta_8 \cdot deb_{i,t} + \beta_9 \cdot book_{i,t} + \beta_{10} \cdot oae_{i,t} + \beta_{11} \cdot iae_{i,t} + \beta_{12} \cdot fae_{i,t} + \beta_{13} \cdot \ln(A_{i,t}) + \beta_{14} \cdot Dc_t \\
 & + D_{G,j} \cdot [\beta_{1,G} \cdot e_{i,t} + \beta_{2,G} \cdot nca_{i,t} + \beta_{3,G} \cdot int_{i,t} + \beta_{4,G} \cdot var.deb_{i,t} + \beta_{5,G} \cdot tax_{i,t} + \beta_{6,G} \cdot ol_{i,t-1} \\
 & + \beta_{7,G} \cdot wc_{i,t} + \beta_{8,G} \cdot deb_{i,t} + \beta_{9,G} \cdot book_{i,t}] + D_{I,j} \cdot [\beta_{1,I} \cdot e_{i,t} + \beta_{2,I} \cdot nca_{i,t} + \beta_{3,I} \cdot int_{i,t} \\
 & + \beta_{4,I} \cdot var.deb_{i,t} + \beta_{5,I} \cdot tax_{i,t} + \beta_{6,I} \cdot ol_{i,t-1} + \beta_{7,I} \cdot wc_{i,t} + \beta_{8,I} \cdot deb_{i,t} + \beta_{9,I} \cdot book_{i,t}] \\
 & + D_{S,j} \cdot [\beta_{1,S} \cdot e_{i,t} + \beta_{2,S} \cdot nca_{i,t} + \beta_{3,S} \cdot int_{i,t} + \beta_{4,S} \cdot var.deb_{i,t} + \beta_{5,S} \cdot tax_{i,t} + \beta_{6,S} \cdot ol_{i,t-1} \\
 & + \beta_{7,S} \cdot wc_{i,t} + \beta_{8,S} \cdot deb_{i,t} + \beta_{9,S} \cdot book_{i,t}] + u_{i,t}
 \end{aligned} \tag{1}$$

Next we define the variables of the model-1:

- Since the stock price is not a stationary, the dependent variable is instead the stock market return (Ali & Hwang, 2000; Hung, 2001) defined as $r_t = \frac{P_{t+3} - P_{t-9} + div_t}{P_{t-9}}$, where r_t is the 12-month returns, P_{t+3} is the price at the end of the third month after the end of fiscal year t , P_{t-9} is the price at the end of the ninth month after the beginning of fiscal year t and div_t is the dividend within this period, but taking into account all capital flows and operations under the premise of the clean surplus relation.
- To test the value relevance of the balance sheet and income statement items against the cash flow statement (hypothesis-1a), we replace the cash flow decomposition by regressors from balance sheet and income statement. In this case, we use the items involved in the estimates of free cash flow and capital cash flow, as these indicators are usually utilized by analysts and investors as a proxy for actual cash flows. Thus, we include (all of them per share and deflated by market price at the beginning of the fiscal year):
 - As a proxy for actual operating cash flow, we include earnings before interest, tax, depreciation and amortization³ ($e_{i,t} = \frac{ebitda_{i,t}}{P_{i,t-1}}$).
 - We use as a proxy for actual investing cash flow: non-current accruals ($nca_{i,t} = \frac{\Delta NCA_{i,t}}{P_{i,t-1}}$) or the changes in net non-current operating assets like in Richardson et al. (2005) and Andrén and Jankensgård (2020).
 - We replace the actual financing cash flow by (similarly Akono18): interest ($int_{i,t} = \frac{financ.expense_{i,t}}{P_{i,t-1}}$) where int_t is financial expense or interest, and also the change in value between two consecutive years of the company's long and short term financial debts ($var.deb_{i,t} = \frac{\Delta Debts_{i,t}}{P_{i,t-1}}$).

- To contrast the country effect (hypothesis-1b), the literature estimates the individual model for each country (for example, Charitou et al. (2010)) and then the results are compared, but the probability distributions of the estimated model errors are different for each country. To avoid the potential inconsistency problems, we test this country effect jointly. To do that, we consider the common effect for these EU countries (or code-law effect) by means of French firms (French⁴ pivot value), and to avoid perfect multicollinearity, we define D_G , D_I , and D_S as dummies for the firm's country (Germany, Italy and Spain, respectively) to measure the country-specific effect.

- To test **hypothesis-2** we include the following variables:

- To compare the effects of the type of financial system (hypothesis-2a), we include (see, Delvalle et al. (2005), Devalle et al. (2010), and Li and Ding (2008)) two variables: the debts-to-asset per share ratio ($deb_{i,t} = \frac{Debts_{i,t}}{A_{i,t}}$) captures the effect of bank-oriented financial systems (we expect a negative effect), and the book-to-market per share ratio ($book_{i,t} = \frac{B_{i,t}}{P_{i,t}}$) captures the effect of market-oriented financial systems and we expect a positive effect. Besides, to identify whether the effect is country-specific, we include the multiplicative effect of each country's dummy by the above variables.

- To study the tax rules effect (hypothesis-2b) as a possible cause of the country-specific effect, we include $tax_{i,t}$, defined as the quotient between taxes and pre-tax profits. Also, we consider multiplicative effect by country dummies. So, we expect a positive tax rule effect (see among others Devalle et al. (2010), Li and Ding (2008), and Troilo et al. (2019))

- We include a new variable to analyze the effect of the transitory earnings (hypothesis-2c) as a possible cause of the country-specific effect, but unlike the empirical literature (Dhole et al., 2021; Hollie et al., 2017), we do not use a dummy with value 1 in cases where the company's earnings are higher than a control value in each year (cross-section) or a statistical control value (time series). We introduce a new variable to capture the effect of persistence, called operating leverage, since we understand that persistence is a dynamic variable and not a subjective dichotomous one. This variable is defined as one delayed operating leverage:

$$ol_{t-1} = \frac{\frac{\Delta ebit_{t-1}}{ebit_{t-2}}}{\frac{\Delta nt_{t-1}}{nt_{t-2}}}, \text{ where } ebit \text{ is operating earnings, and } nt \text{ is net turnover (revenues); then, the}$$

higher indicator, the higher the earnings volatility, and therefore, the higher the transitory earnings. As in the previous cases, the multiplicative effect of this variable is reflected by the dummy of each country.

- To test whether the level of creditor protection is the differentiating effect by country (hypothesis-2d), we include in the model the change in value of working capital between two consecutive years (see, Troilo et al. (2019)), estimated as inventory plus trade debtors and minus trade creditors ($wc_{i,t} = \frac{\Delta WC_{i,t}}{P_{i,t-1}}$) and multiplicative effect by dummy for each country. Since a stronger rule for creditor protection results in lower levels of working capital then, we expect a negative creditor protection effect.

- Note that all these regressors above are obtained from the balance sheet and the income statement, without resorting to the cash flow statement and, notice also that our proxies exclude some components of actual cash flows such as non-operating accruals and non-current operations, among others. This is intentional to test the added relevance of the cash flow statement. Then, following the literature (Hribar & Collins, 2002; Orpurt & Zang, 2009), we include another regressor to capture our articulation error from these proxies. Thus, we estimate operating, investing and financing cash flows respectively as: $cfo_{i,t} = \frac{Cfo_{i,t}}{P_{i,t-1}}$, $cfi_{i,t} = \frac{Cfi_{i,t}}{P_{i,t-1}}$ and $cff_{i,t} = \frac{Cff_{i,t}}{P_{i,t-1}}$. Therefore, for each component of cash flow statement, we define the difference in absolute value (we are interested in the size of the error and not the sign) between the cash flows estimated from the balance sheet and the income statement information versus the cash flow statement as:

operating cash flows error of articulation ($oae_{i,t} = |cfo_{i,t} - [e_{i,t} + wc_{i,t}]|$), investing cash flows error of articulation ($iae_{i,t} = |cfi_{i,t} - nca_{i,t}|$) and financing cash flows error of articulation ($fae_{i,t} = |cff_{i,t} - [int_{i,t} + var.deb_{i,t}]|$). If these variables are not statistically significant when estimating the model then, the added value relevance of the cash flow statement on the balance sheet and income statement information is null.

• Also, we include control variables:

- The size effect⁵ measured through the logarithm of the total asset ($\ln(A_{i,t})$), see, A. Charitou et al. (2001).
- The term $u_{i,t}$ shows the firm-specific factors influencing earnings and cash flows (Habib, 2008). Since expression-1 is a panel data model, these effects could be fixed (constant for each firm throughout the entire sample period) or random (not constant) based on test results.
- To test the influence of the economic cycle on the explanatory power of accruals (Frankel & Sun, 2018), we also add a dummy variable (Dc_t) for each year of the sample to collect the annual effect of the economic cycle then, for each year c , this variable takes value 1 if $t = c$ and zero otherwise (temporary effect).

To estimate expression-1, note that $u_{i,t}$ is the error terms, which also includes the individual effect of each company, either fixed for the entire sample period or random, according to the result obtained from the robust Hausman test to discriminate between both of them. Furthermore, Onali et al. (2017) show that if the Breusch-Pagan LM test is significant (p -value < 0.05), the random effects (generalized least squares, GLS) model should be preferred to ordinary least squares pooled (OLS). Additionally, to discriminate between the cash flow model or the income and accruals model, the literature (Wang, 2013) uses R^2 to compare the relative performance of earnings versus cash flows to explain stock returns. However, in the case of comparison of country-specific effects from estimates on different samples, indicated above, the coefficient of determination is not adequate to infer whether two different sets of information (cash flows statement versus balance sheet and income statement) equally explain the behavior of the same dependent variable. As a consequence, note that in expression (1), β_{10} , β_{11} , and β_{12} show our articulation error weight or the different value relevance of balance sheet and income statement versus cash flow statement. The hypothesis-1a is rejected when these parameters are not statistically significant, since we find evidence that cash flow statement does not present a relevant added value over the balance sheet and income statement information to explain the stock returns in code-law countries.

Besides to test hypothesis-1b or country-specific effect in expression (1), β_1 to β_9 are the explanatory EU mean weights of balance sheet and income statement items or mean EU-effect (using French pivot value). In contrast, $\beta_{1,country}$ to $\beta_{9,country}$ are the explanatory excess weights for German, Italian, and Spanish firms with respect to the EU mean level and then, these parameters show the country-specific effect for each of the other countries with respect to the EU-effect, so that if any of the latter parameters is statistically significant, hypothesis-1b is accepted for the corresponding country.

Finally, to analyze the potential causes of the country effect we test the statistical significance of the following parameters (hypothesis-2):

- While β_8 and β_9 show the common orientation (bank or market, respectively) of the financial system for EU, $\beta_{8,country}$ and $\beta_{9,country}$ represent the differential effect of the orientation of the financial system for each country (Germany, Italy and Spain) with respect to the EU mean effect (hypothesis-2a).

- The parameter β_5 shows the tax rules effect for EU, while $\beta_{5,country}$ represents the differential effect of tax rules for each country: Germany, Italy and Spain (hypothesis-2b).
- The parameter β_6 shows the transitory earnings effect for EU and $\beta_{6,country}$ represent the differential effect of transitory earnings for each country (Germany, Italy and Spain) with respect to the EU mean effect (hypothesis-2c).
- The parameter β_7 shows the creditor protection effect through changes in working capital in EU, by contrast, $\beta_{7,country}$ is the differential effect for each country (Germany, Italy and Spain) with respect to EU mean effect (hypothesis-2d).

4. Data

The sample is made up of French, German, Italian, and Spanish non-financial listed firms (banks, insurance, financial, and real estate companies are excluded), since financial statements are formulated in the same currency (euro) and subject to European Directives and IFRS. The data period runs from 2010 to 2019, but as some variables are estimated by the differences between two consecutive fiscal years, the analyzed period covers 2011–2019. The choice of countries and sample period is conditioned by the size of their economies relative to the EU total.

In order to have the largest possible sample, we have used Bureau van Dijk (BvD) Amadeus and Osiris databases, since some variables, such as cash flows, are only available in one of the databases (Osiris). We have used the BvD identifier number to link the information from both databases. Those annual observations per company for which some necessary variable might be unavailable have been eliminated. As usual in the literature, we also excluded, for each firm, those years with negative book values, as well as extreme values which are located in the distribution tails (less than 1% or more than 99%). As a result of the search, the final sample has the following composition:

Table 1 shows that France and Germany have a similar representation. Italy has slightly less than half of the two large countries' number of participating companies. Spain has a quarter of the size of Germany or France. Therefore, the sample reflects the real size of the economies. Note that, while our model is estimated with 8,492 data, if the estimate strategy were by country, for the Spanish case we only have 701 observations. Finally, note that more than 80% of the companies display data for at least four years.

Table 2 shows the main statistics of the variables and the correlation coefficients between every two.

Note in Table 2 that market returns behavior is more Gaussian than the accounting figures, which justifies the use of panel data instead of another methodology to include individual behavior (fixed or random).

5. Results

Before estimating the expression (1), we use the robust Hausman test, whose value is 8.53 (with 0.95 p-value), which accept the null hypothesis that the random effects are efficient; also, we estimate Breusch-Pagan LM test with value 38.26 (with 0.004 p-value) and then, the efficient estimating method is GLS (within-between). Table-0 shows the results of the estimations of expressions (1).

As in the literature (A. Charitou et al., 2001), we observe size effect (higher return when firm size is larger). However, unlike Frankel and Sun (2018), temporary dummies (Dc_t) are not reported since they are not significant in any case, therefore, our sample does not show the economic cycle effect. Also, note that the residual autoregressiveness test shows no autoregressivity.

Table 1. Sample composition

Observ. per firm	France		Germany		Italy		Spain		Total sample	
	Firms	Observ.	Firms	Observ.	Firms	Observ.	Firms	Observ.	Firms	Observ.
with 1 year	14	14	25	25	24	24	17	17	80	80
with 2 years	16	32	20	40	20	40	10	20	66	132
with 3 years	17	51	20	60	11	33	3	9	51	153
with 4 years	18	72	20	80	20	80	8	32	66	264
with 5 years	21	105	21	105	12	60	6	30	60	300
with 6 years	17	102	34	204	9	54	0	0	60	360
with 7 years	16	112	24	168	10	70	1	7	51	357
with 8 years	27	216	27	216	40	320	8	64	102	816
with 9 years	286	2,574	266	2,394	60	540	58	522	670	6,030
Sum	432	3,278	457	3,292	206	1,221	111	701	1,206	8,492

Table 2. Statistical summary

Panel A. Statistics analysis

statistics	r	e	nca	int	var.deb	tax	ol	wc	deb	book	oea	iea	fea	ln(A)
observations	8,492	8,492	8,492	8,492	8,492	8,492	8,492	8,492	8,492	8,492	8,492	8,492	8,492	8,492
mean	0.0353	0.2041	0.0134	0.7445	0.0182	0.0283	0.4855	0.0149	0.5678	0.9213	0.4230	0.3422	0.3228	2.8201
median	0.0240	0.1384	0.0054	0.5652	0.0122	0.0542	0.0839	0.0050	0.4955	0.6350	0.3892	0.3205	0.3108	2.7003
Q1	-0.1860	0.0581	-0.0254	0.3001	-0.0438	0.0711	-0.0528	-0.0254	0.2524	0.3479	0.1696	0.1370	0.1396	1.5944
Q3	0.2344	0.2599	0.0668	0.8628	0.1163	0.1272	11.836	0.0475	0.6322	10.935	0.6610	0.5335	0.4899	3.8325
min	-0.9830	-20.730	-39.185	0.0937	-118.736	0.0022	-99.523	-33.887	0.1874	0.0000	0.0000	0.0000	0.0000	0.002
max	1.0000	114.812	35.663	0.3367	119.644	2.077	147.592	37.361	0.8965	17.777	0.9998	0.7998	0.7496	18.0602
std. dev.	0.3446	0.4870	0.3867	5.8214	0.8375	13.459	26.146	0.3032	0.3348	11.308	0.2848	0.2292	0.2074	1.676 3
skewness	0.1959	109.605	-16.153	3.8347	-11.325	3.4552	0.0609	-0.9465	24.571	52.124	0.2888	0.2268	0.2289	0.9441
kurtosis	0.1658	190.301	27.123	5.9821	609.207	14.365	34.940	30.645	784.521	41.189	-11.012	-11.526	-10.659	2.8922

Panel B. Correlation matrix

variables	r	e	nca	int	var.deb	tax	ol	wc	deb	book	oea	iea	fea	ln(A)
r	1													
e	0.0853	1												
nca	0.1118	0.1462	1											
int	0.0013	0.0546	0.0962	1										
var.deb	0.0735	0.0622	0.3313	0.1478	1									
tax	0.0485	0.1546	0.1128	0.16642	-0.0642	1								
ol	0.0332	0.0412	-0.0337	0.0843	-0.0345	0.0643	1							
wc	0.0594	0.0032	0.0515	0.2246	0.2861	0.0804	-0.0013	1						
deb	0.3476	0.1965	0.3643	0.7584	0.5542	0.1247	0.0975	0.1423	1					
book	-0.2202	0.2023	-0.1281	0.1288	-0.1038	0.0543	0.0930	-0.0474	0.3547	1				
oea	0.0190	-0.0007	-0.0519	0.0521	-0.0006	0.0011	0.0171	0.0121	0.0221	-0.0519	1			
iea	0.0377	0.0841	0.0525	-0.0242	-0.0551	0.0024	0.0125	0.0210	0.1031	-0.0348	0.0796	1		

(Continued)

Table 2. (Continued)

Panel B. Correlation matrix

<i>fae</i>	0.0100	-0.0017	-0.0699	0.0418	-0.1123	0.2234	-0.0153	-0.0278	0.1145	0.0530	0.0502	0.0505	1
<i>ln(A)</i>	0.0595	0.3041	0.0738	0.02263	0.0815	0.1104	0.0890	0.0203	0.3311	0.2735	0.1098	0.2531	0.1354
													1

r is annual stock market return, *e* is earnings before interest and tax deflated by market price at the beginning of the fiscal year, *nca* is the changes in net non-current operating assets deflated by market price, *int* is financial expense deflated by market price, *var.deb* is changes of financial debts in two consecutive years and deflated, *tax* is quotient between taxes and pre-tax profits, *oi* is one delayed operating leverage, *wc* is the change in the value of working capital between two consecutive years deflated by market price, *deb* is the debts-to-asset ratio, *book* is the book to market ratio per share, *oae* is the articulation error for operating cash flow, *iae* is investing articulation error, *ln(A)* is log-asset.

Table 3. Model estimation results

Regressors	EU mean effects		Germany added effects		Italy added effects		Spain added effects	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
<i>e</i>	0.1235	9.11 **	0.0685	3.24 **	0.1586	5.02 **	-0.0830	-4.67 **
<i>nca</i>	0.0437	4.16 **	0.0016	1.26	0.0215	1.34	-0.0014	-0.53
<i>int</i>	-0.0856	-1.05	-0.0392	-1.02	-0.0176	-0.41	0.0147	0.064
<i>var.deb</i>	0.0049	1.12	-0.0021	-1.04	0.0113	0.95	-0.0019	-0.35
<i>tax</i>	0.0153	3.12 **	-0.0117	1.99 *	0.0548	4.07 **	0.0371	1.98 *
<i>ol</i>	0.0057	4.14 **	-0.0086	-0.26	0.0083	1.08	0.0046	0.58
<i>wc</i>	0.0620	2.66 **	-0.0735	-2.31 *	-0.0463	-1.21	-0.0392	-1.08
<i>deb</i>	0.0024	1.42	0.0012	1.17	0.0045	1.55	-0.0157	-2.09 *
<i>book</i>	0.0913	16.11 **	0.0018	1.23	0.0108	1.05	-0.0789	5.97 **
<i>oea</i>	0.0151	1.23						
<i>lea</i>	0.0241	1.58						
<i>fea</i>	0.0132	0.82						
<i>ln(A)</i>	0.0168	6.77 **						
AR(1) test N(0,1)				0.082 [0.93]				
AR(2) test N(0,1)				1.349 [0.18]				
Adjusted R ²				29.52%				

* and ** mean statistically significant at 5% and 1%, respectively. Standard errors are robust against autoregressivity and heteroscedasticity. AR(1) test measures potential autoregressivity of errors, this test is distributed as accumulated standard normal and null hypothesis is absence of autoregressive. Variables: *e* is earnings before interest and tax deflated by market price at the beginning of the fiscal year, *nca* is the changes in net non-current operating assets deflated by market price, *int* is financial expense deflated by market price, *var.deb* is the changes of financial debts between two consecutive years and deflated, *tax* is the quotient between taxes and pre-tax profits, *ol* one delayed operating leverage, *wc* is the change in the value of working capital between two consecutive years deflated by market price, *deb* is the debts-to-asset ratio, *book* is the book to market ratio per share, *oea* is the articulation error for operating cash flow, *lea* is investing articulation error, *fea* is financing articulation error, *ln(A)* is log-asset.

From Table 3, note that articulation errors for operating, investing and financing cash flows are not statistically significant then, we accept hypothesis-1a since cash flow statement does not add informative relevance with respect to the balance sheet and income statement. Therefore, we do not find empirical evidence on the relevance of the added value of cash flow statement information using the articulation errors (unlike Hribar and Collins (2002); Orpurt and Zang (2009)). In addition, we observe that not all balance sheet and income statement items, which are statistically significant, show the same weight for all countries (see, Devalle et al. (2010), EBITDA, for example). Besides note that interest and changes of debts are not statistically significant (unlike Akono and Nwaeze (2018)) then, financing cash flow proxies are not value relevant. Also, non-current operating accrual (see, Richardson et al. (2005)) and operating leverage are statistically significant. The latter supports the empirical evidence found in Dhole et al. (2021) on the explanatory power of transitional earnings to explain stock returns in code-law countries.

Since the country-specific parameters (dummies) are statistically significant, we find country-specific effect (such as among others Charitou et al. (2010)), whereby we accept the hypothesis-1b on the existence of a country effect. The novel result is that this country effect does not manifest itself in all regressors, for example, non-current operating accrual and operating leverage show no country effect since the respective parameters for each country are not statistically significant.

However, we find that EBITDA is statistically significant for all countries, but with country-specific effect: 0.1235 (France), 0.1920 (Germany, $0.1235 + 0.0685$), 0.2821 (Italy, $0.1235 + 0.1586$) and 0.0405 (Spain, $0.1235 - 0.0830$). Italy has the highest EBITDA effect and Spain the lowest. Also, we observe tax effect with value of 0.0153 for code-law EU countries; however, Germany shows a negligible tax effect ($0.0153 - 0.0117 = 0.0036$), by contrast Italy ($0.0153 + 0.0548 = 0.0701$) and Spain ($0.0153 + 0.0371 = 0.0524$) present the highest tax effect compared to the EU average effect. We observe another country effect in the changes in working capital since, while the average EU effect is 0.062, Germany has a negative value ($0.062 - 0.0735 = -0.0115$). Besides, debt-to-asset ratio is only statistically significant for Spain and book-to-market ratio shows a mean EU effect of 0.0913, while Spain presents a lower value ($0.0913 - 0.0789 = 0.0124$).

In short, we find the following causes for the previous results on the country-specific effect:

- All countries (France, Germany and Italy) have market-oriented financial systems, but Spain has a bank-oriented financial system. As a consequence, we accept the hypothesis-2a for the Spanish case.
- Similar to Troilo et al. (2019), we find that the fiscal effect is highly relevant. We observe that the tax effect is different across the sample countries. In particular, the largest effect is observed in Italy, then Spain, followed by France. Finally, in Germany the effect of taxation is not significant; therefore we accept hypothesis-2b for Italy, France and Spain.
- Note that one delayed operative leverage shows a mean EU effect statistically significant, but this transitory earnings effect does not differ from country to country. Thus, as Dhole et al. (2021) noted, although this effect may explain why the informative relevance of the balance sheet and income statement is greater than that of the cash flow statement, however the transitory earnings effect does not explain the country-specific effect and then, we reject the hypothesis-2c.
- The working capital changes present a positive mean EU effect statistically significant, but Germany shows a negative effect, whereby the legal protection of creditors in Germany is a cause of the country-specific effect and then, we therefore (as Troilo et al. (2019) noted) accept the hypothesis-2d for Germany.

6. Discussion and conclusions

The literature on the relevance of cash flow statements has mainly focused on Anglo-Saxon countries and it has found empirical evidence on the higher explanatory power of: (i) cash flows versus earnings and (ii) the direct versus the indirect method. The evidence also shows additional factors to explain market returns from cash flows, such as: size, growth, sample period and firm effect. Furthermore, the comparison of empirical studies on the relevance of cash flow statement between common-law and code-law countries have concluded that balance sheet and income statement items show higher value relevance to explain market stock returns than cash flow statement. Also, some empirical research has found evidence of a country-specific effect on the relevance of accounting information, as a consequence of different financial and regulatory causes. However, there are no empirical studies that combine both objectives, i.e., that analyze whether the higher explanatory power of earnings and accruals on stock returns in code-law countries is a general feature of all code-law countries or, on the contrary, is a country-specific effect.

In this context, our objective is to test, on the one hand, the superiority of the explanatory power of balance sheet and income statement information over the cash flow statement in code-law countries, and on the other hand, to test whether this superiority is the same in all code-law countries. In this way, we identify whether the cause of this explanatory superiority is the same for all companies regardless of their country of origin. Although, the financial literature (Ali & Hwang, 2000; Bartov et al., 2002; Delvaile et al., 2005; Devalle et al., 2010; Hung, 2001; Li & Ding, 2008; Troilo et al., 2019) has described different causes that explain this country-specific effect, but until now it had not been empirically tested using a single estimated model to avoid problems of inconsistency with the distribution of errors that arise when analyzing country by country. Thus, we define an EU mean effect for the total of the countries in the sample and then, for each item of the balance sheet and income statement, we include country added effects that represent the different effect of each country compared to the EU average.

To do so, our sample selection addresses two relevant issues for code-law countries: the firms use the same currency, which avoids exchange rate inconsistencies, and the companies are subject to a basic common regulatory framework. Thus, the sample is made up of non-financial companies listed in France, Germany, Italy, and Spain for the 2011–2019 period.

As well as in literature, we find that balance sheet and income statement are most relevant than cash flow statement for explaining stock market returns since we find that articulation error, when replacing actual cash flows with the proxies is not statistically significant. In addition, our results identify the factors that most influence investors from the main EU countries: EBITDA, tax, working capital management, non-current operating investments, financial debts level and book-to-market ratio. So, we find empirical evidence that the weight of some items from balance sheet and income statement depends on the nationality of the firms and therefore, we accept the hypothesis of a country-specific effect within the EU code-law environment.

The main contribution our study is that we find effects common to all EU code-law countries and country-specific effects. Thus, transitory earnings (measured by a lagged operating leverage) show a single and common effect for all countries in the sample (see, Dhole et al. (2021)), so while it may be a cause of the greater explanatory power of the balance sheet and income statement versus the cash flow statement, it is not a cause of the country-specific effect. By contrast, we find empirical evidence that tax rules, creditors protection and orientation of financial system are causes of the country effect (see, Troilo et al. (2019)). In particular, we find that French companies are affected by tax and market-oriented financial system, German firms are influenced by creditors protection and market-oriented financial system, Italian companies are the most influenced by tax regulation and also show market-oriented financial system and, finally, Spanish firms show the lowest effect of EBITDA, are more bank-oriented than market-oriented financial system and also, are influenced by tax rules.

Our results are useful for economic agents such as investors and analysts who use the firms' accounting information to pay more attention to the relevant variables. Additionally, our evidence is of interest to academics, since it opens up future lines of research aimed at finding those variables that best explain the country-specific effect. This study is also valid for regulators, whose purpose is to require companies to focus on information that is relevant and homogeneous for economic agents, avoiding an excessive amount of information with low relevant added value.

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Notes

1. In Spain, in 2010–2019, the financial statements presented by companies have increased 80%–140% in volume, measured by number of pages. For example, INDITEX's consolidated financial statements in 2010 were 141 pages long, while in 2019 they were 294 pages long, which represents a 108.5% increase.
2. For example, Feltham and Ohlson (1995) express the value of the share price as a combination of book value and abnormal operating earnings.
3. Devalle et al. (2010) point out that EBITDA is an appropriate measure of the company's recurring results that avoids transitory results (see footnote 4).
4. We use France as the pivot value since of the large countries in our sample (France and Germany) it is the most studied in the literature reviewed.
5. Note that these control variables correspond to factors used in asset pricing (Fama & French, 2015) and that we use stock returns, its as the dependent variable instead of abnormal returns. So, it's unnecessary to include these factors again as an explanatory variable for asset pricing.

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